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The impact of aging on labour market participation rates

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.. not available for a specific reference period
... not applicable
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0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p} preliminary
^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E} use with caution
F too unreliable to be published
* significantly different from reference category ($p < 0.05$)

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Overview of the study

Since 2007—prior to the economic downturn of 2008/2009—the overall labour force participation of Canadians declined by about two percentage points. The first part of the study investigates the extent to which aging affected changes in labour market participation rates since 2007, based on data from the Labour Force Survey (LFS). In the second part, the reasons behind the increase in the participation rates of Canadians aged 55 and over, which have been trending upwards since 1996, are explored.

- In 2016, individuals aged 55 and over accounted for 36% of the working-age population, the highest proportion on record (since the compilation of comparable statistics in 1976). By 2026, that proportion could reach 40%.
- Because labour market participation starts to decline after age 55, population aging was the main factor behind the decline in the overall participation rate in the years following the recession.
- At the same time, the labour market participation of older Canadians increased. From 1996 to 2016, the labour force participation rate of individuals aged 55 and over increased from 24% to 38%, reaching a record high in 2016.
- The participation rate of individuals aged 55 and over increased for all levels of education. For instance, the participation rate of those with a high school diploma or less increased from 19% in 1996 to 29% in 2016.
- Changes in age, family structure and educational factors explained 44% of the increase in the labour market participation of older Canadians from 1996 to 2016.

Introduction

In recent years, there has been a slow and steady decline in the overall labour market participation rate, which is the ratio of employed and unemployed people to the total working-age population (aged 15 and older). In 2016, that annual rate was 65.7%, the lowest in 17 years. Since 2007—just before the Canadian economy was hit by the 2008/2009 recession—the participation rate declined by nearly 2 percentage points. From 2007 to 2016, the working-age population increased by 3.1 million people, but the number of labour market participants increased by 1.6 million.

At the same time, there has been unprecedented population growth among older Canadians since the early 2000s. Both the median age and the proportion of people 55 and over in the population have increased due to a number of factors, particularly the aging of the baby-boom generation, but also below-replacement fertility rates for close to 50 years and an increase in life expectancy.[1]

The recent growth in the population aged 55 and over is more specifically associated with the aging of the baby boom generation. This is the cohort of people who were born between 1946 and 1965, as year-over-year birth rates accelerated after the Second World War.[2] In 2016, this group was between the ages of 51 and 70.

Population changes related to aging have labour market implications because people are less likely to work after the age of 55. Therefore as the share of older Canadians

increases—with essentially no growth in the population of younger Canadians—the Canadian economy may face challenges related to extended periods of slow growth. Furthermore, an aging population requires more support from government programs such as health care and Old Age Security. At the same time, the tax base could shrink as a result of a declining share of core-age workers. An aging workforce may also create challenges for employers, such as reduced work hours, health issues, and labour shortages.

Though participation rates have recently increased among people 55 and over, this growth will not be enough to offset the negative effects of the declining share of the core-age and youth population, whose participation rates are notably higher than those for individuals 55 and over.[3] This raises the possibility that the compositional shift related to population aging has been the main reason for declining participation rates in recent years.

Using the Labour Force Survey, this paper provides an overview of the interaction between shifts in the labour market related to population aging, as well as other sociodemographic factors. The paper first provides long-term trends in the participation rate based on data from 1976 to 2016. It then focusses on the period 2007 to 2016 in an attempt to explain the recent decline in the participation rate of individuals aged 15 and above. Lastly, the study examines the factors behind the increase in the participation rate of individuals aged 55 and above since 1996. Understanding which factors are behind the increase in the participation rates of older Canadians is important since older workers are seen as an important counterbalancing factor to the aging of the working-age population.

In 2016, more than one-third of the working-age population was 55 or over

In 2016, Canadians aged 55 and over accounted for 36% of the working-age population (aged 15 and over), up from 30% in 2007 and noticeably higher than the average of 25% through the 1990s (Chart 1).[4] The share of Canadians in this age group is projected to continue to increase and reach an estimated 40% of the working-age population in 2026.[5]

The increases among this group are mostly due to the first wave of baby boomers who began to turn 55 in 2001. In 2016, this cohort was between the ages of 51 and 70. By 2021, the baby boom cohort will have fully transitioned past the age of 55, and once that has occurred, population growth is expected to moderate in this age group.

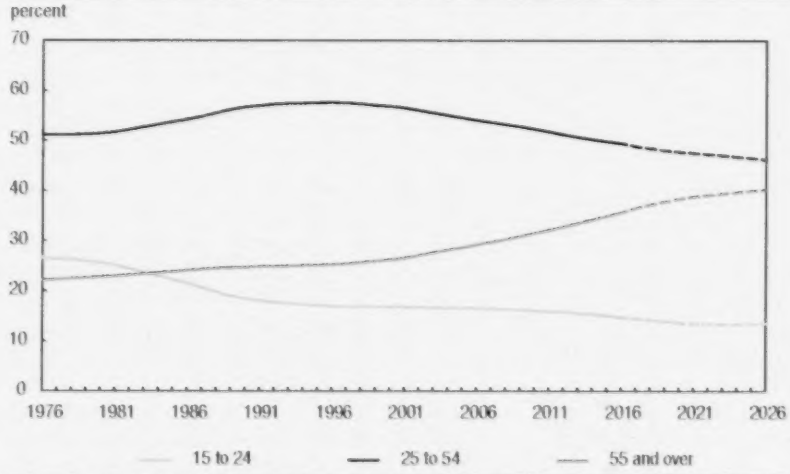
People aged 25 to 54 are considered to be of core working-age because of their strong attachment to the labour market. Their population share fell from 54% in 2007 to 49% in 2016—the lowest proportion since the compilation of comparable statistics in 1976. That proportion is projected to continue to decline, and could drop to 46% by 2026.

The share of the population aged 15 to 24 also declined from 2007 to 2016, from 17% to 15%. The proportion of youth in the labour market never stopped declining after 1976, when people aged 15 to 24 accounted for more than one-quarter of the working-age population.[6]

Fewer are entering than exiting the labour market

In 2016, there were 4.4 million youths aged 15 to 24 in the population and 4.9 million people aged 55 to 64, meaning there is a widening gap between the number of younger

Chart 1
Distribution of working-age population, by age group, 1976 to 2016



Sources: Statistics Canada, Labour Force Survey, 1976 to 2016; Population Projections for Canada, Provinces and Territories, 2017 to 2026.

people entering the labour force and the number of people preparing to exit the labour market.

The ratio of youths to people 55 to 64 was 0.9 in 2016—below replacement and the lowest ratio using comparable statistics. In contrast, in 1976 there were 2.4 youths for each person aged 55 to 64. This ratio trended downward during the 1980s and 1990s, but dipped below 1.0 for the first time in 2013. Based on population projections, this trend is expected to continue over the next two decades.

Aging had an impact on labour market participation rates

The participation rates for people 55 and over have increased considerably since the turn of the century, rising from 24% in 1996 to 38% in 2016. This is the highest rate for this group, using comparable records that began in 1976 (Chart 2).

While delayed retirement is a persisting trend among the baby boom cohort,[7] their participation rates are still notably lower than those in the core-age group. There is also a difference in participation between those aged 55 to 64 and those aged 65 and above. Specifically, among those aged 55 to 64, the participation rate was 66% in 2016 compared with 14% for those aged 65 and over. The aging of baby-boomers, who are now transitioning into the older age groups (65 and above), will likely impact the participation rate of the population aged 55 and over.

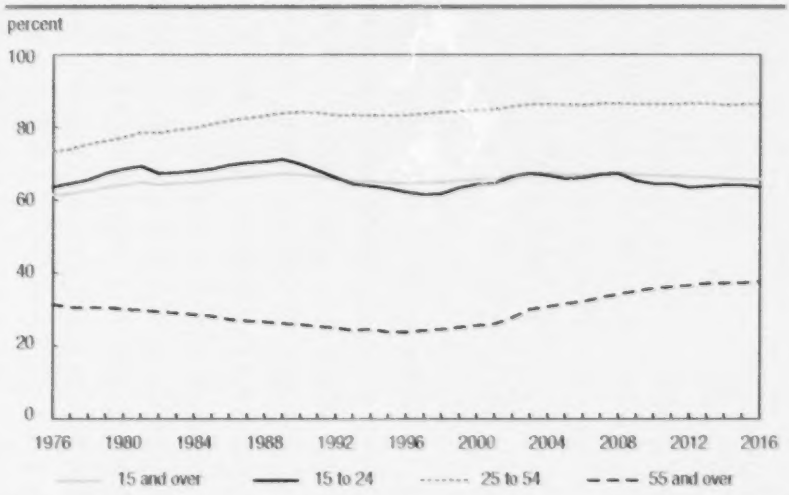
In 2016, the participation rate of the core-age population (ages 25 to 54) was 87%. Participation rates for this group have always been the highest and have remained relatively stable since 1996, following the large increase in women's participation during the 1980s and 1990s. The trend is down for youth aged 15 to 24, having fallen by about 3 percentage points from 2007 to 2016.[8]

The increasing share of older Canadians creates downward pressure on the overall participation rate as fewer people are attached to the labour market relative to the total population. Holding the age structure of the population constant to a specific year provides a hypothetical look at what the overall participation rate would have been if the population were the same age as in that reference year.[9] Using this technique, the following question can be answered: What would the evolution of the participation rate have been if the age structure had always remained the same as in 1976, when the share of people 55 and over represented 22% of the population (as opposed to 36% in 2016)?

The results show that if the demographic composition of the working-age population were held to 1976 rates, the overall participation rate would be about 4 percentage points higher than the actual rate of 66% in 2016 (Chart 3). This is because virtually all age groups were participating at higher levels in 2016 compared with 1976. Furthermore, the participation rate would not have trended downward after the turn of the century if the age structure had remained constant. Instead, the overall participation rate would have remained relatively constant.

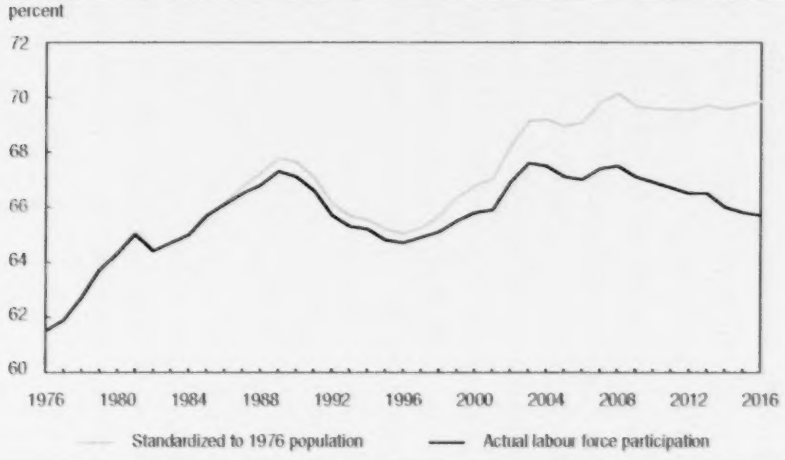
In the years after 2003, the age-standardized participation rate began to trend up while the actual rate began to trend down. The gap between the actual participation rate and the age-standardized counterfactual became even larger in the years after the 2008 economic downturn.

Chart 2
Participation rates by age group, 1976 to 2016



Source: Statistics Canada, Labour Force Survey, 1976 to 2016.

Chart 3
Actual and hypothetical (based on 1976 population structure) participation rates of people aged 15 and over, 1976 to 2016



Source: Statistics Canada, Labour Force Survey, 1976 to 2016.

Decomposing the change in labour market participation from 2007 to 2016

Aside from population aging, other factors can also have an impact on changing participation rates. These factors include other compositional effects—the result of changes in population characteristics over time, as well as non-compositional effects. Other compositional effects include the following factors:

- **Education-related factors**
  The participation rates of more highly educated individuals are higher than their less-educated counterparts, therefore rising levels of educational attainment are expected to have a positive impact on participation rates. On the other hand, rising school attendance among younger individuals can also have a negative impact since students participate less than non-students.
- **Family-related factors**
  Marital status and the presence of children can have an impact on labour market participation. Similarly, work and leisure complementarities between spouses may play a role, particularly for the older population, as older men are more likely to stay in the labour market if their spouse is also working.[10]

Non-compositional effects may include, for example, changes in hourly wages (all else being equal, participation increases with rising wages); employment opportunities in the local labour market; wealth effects (indebted individuals might be more inclined to stay in the labour market);[11] and health effects (healthier individuals are more likely to keep working).[12]

In this section, the impact of aging, along with changes in other compositional effects, are considered simultaneously to quantify the role of all these factors in the overall decline in participation rates from 2007 to 2016. This is done using results from a standard Oaxaca–Blinder decomposition technique (see "Data sources, methods and definitions"). Education variables include highest level of educational attainment (high school diploma or less, trades certificate or college diploma, or university degree) and school attendance. Family-related variables include marital status, presence of children and employment status of spouse.

From 2007 to 2016, the participation rate declined by 1.7 percentage points among those aged 15 and over (from 67.4% to 65.7%). A series of counterfactuals have been applied to estimate the potential effect of each factor taken individually (age, education and family) and collectively (when all of these factors are accounted for together).

Results indicate that if the age structure had been the same as in 2007, the participation rate would have increased rather than decreased—from 67.4% in 2007 to 68.3% in 2016 (Table 1). This confirms the importance of aging in the evolution of labour market participation rates in recent years.

While changes in family structure alone had no significant impact on changes in the participation rate, educational factors did have a positive impact over the period, mainly because of the working-age population's rising levels of educational attainment. For example, the proportion of working-age women who had a university degree increased from 19% to 26% over the period, while the same proportion increased from 20% to 24% among working-age men. In fact, the participation rate would have declined by an even larger margin

Table 1
Decomposition of changes in participation rates from 2007 to 2016, men and women aged 15 and over

	Both sexes	Men	Women
	percent		
Actual			
2007	67.4	72.5	62.5
2016	65.7	70.3	61.3
2016 Counterfactual			
With 2007 age structure only	68.3	72.9	63.8
With 2007 education and school attendance structure only	63.4	68.5	58.3
With 2007 family structure only	65.8	70.2	61.5
With 2007 age, family, education and school attendance structure	67.3	72.3	62.2

Source: Statistics Canada, Labour Force Survey, 2007 and 2016.

(by 4 percentage points instead of about 2) in the absence of educational factors. In other words, were it not for the positive impact of a better-educated population, the impact of aging on participation rates would have been even more negative.

Lastly, if these three groups of factors had remained constant (at their 2007 levels), the participation rate would not have changed from 2007 to 2016 (i.e., it would have remained at 67% instead of declining by 2 percentage points).

Similar results were found for men and women. In both cases, participation would have increased rather than decreased if the age structure had been the same as in 2007, and that without educational gains, participation rates would have declined even further between 2007 and 2016.

Explaining the increase in the participation rates of older Canadians

The increase in the participation rates of older Canadians is not a new phenomenon. From 1996 to 2007, the participation rate for those aged 55 and over increased from 24% to 33%. Their participation rate continued to increase over the next decade, albeit more slowly. In 2016, their rate was 38%, the highest since the collection of comparable statistics in 1976.

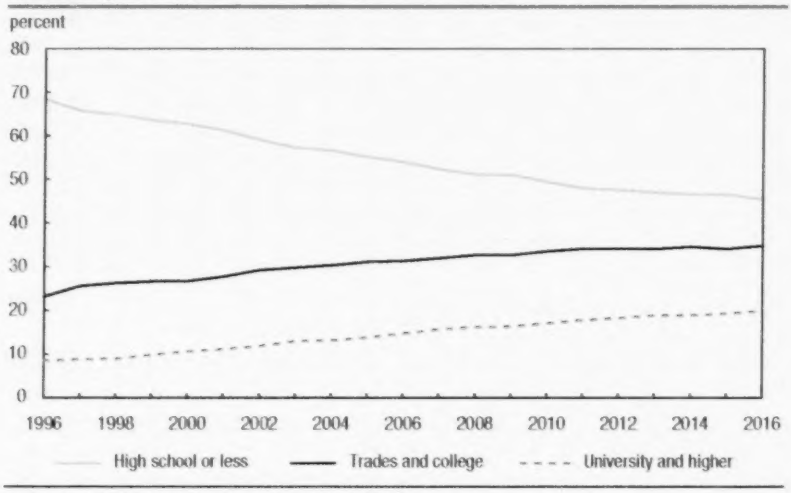
Which factors accounted for the 14-point increase in the participation rate of seniors from 1996 to 2016? Again, several compositional and non-compositional effects can be identified as possible factors.

One of these factors is the increase in the educational attainment of older individuals (Chart 4). The proportion of people 55 and over with a university degree rose from 9% in 1996 to 20% in 2016. At the same time, the proportion of those with a high school diploma or less fell from 68% to 45%. Thus, older Canadians in 2016 were more likely to have higher levels of education than two decades earlier.

Older Canadians with a university degree are more likely to be in the workforce. In 2016, their participation rate was 48% (Chart 5), compared with 29% for those with a high school diploma or less, and 44% for those in the middle of these two categories (with a trades certificate or college diploma).

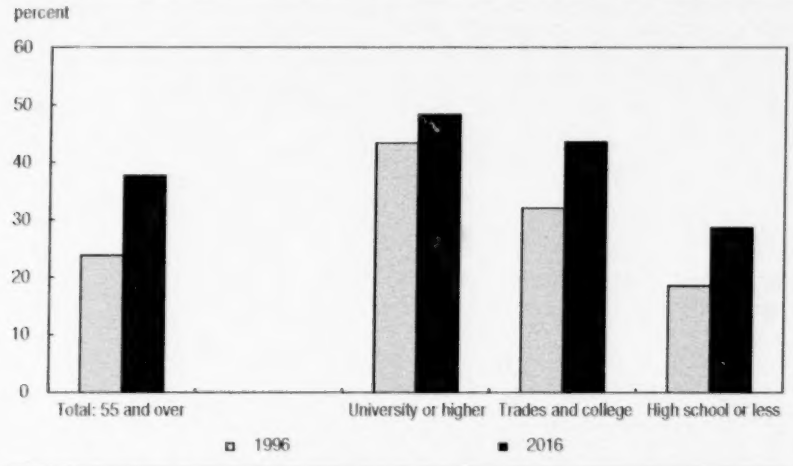
However, participation rates have increased for older Canadians in every educational group, especially among

Chart 4
Distribution of persons aged 55 and over across categories of highest level of education, 1996 to 2016



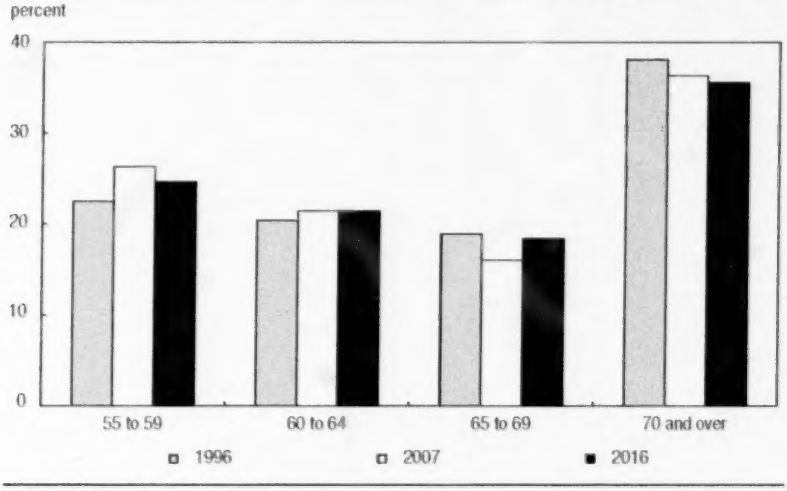
Source: Statistics Canada, Labour Force Survey, 1996 to 2016.

Chart 5
Participation rates of people aged 55 and over, by education level, 1996 and 2016



Source: Statistics Canada, Labour Force Survey, 1996 and 2016.

Chart 6
Distribution of persons aged 55 and over by age group, 1996, 2007 and 2016



Source: Statistics Canada, Labour Force Survey, 1996, 2007 and 2016.

those with a trades certificate or college diploma, and those with a high school diploma or less. From 1996 to 2016, for example, participation among those 55 and over with a trades/college education rose 12 percentage points, while it rose 10 points among those with a high school diploma or less. The participation rate for graduates with a university degree in this age group rose 5 percentage points.

As is the case for the population as a whole, other factors can also play a role in the rising participation rates of older individuals. Age, for example, can play a particular role, given that people aged 55 to 64 participate more in the labour market than those in older age groups. In 2016, for instance, the participation rate among individuals aged 55 to 64 was 66%, compared with 14% among those aged 65 and over.[13]

From 1996 to 2016, the age distribution of the population aged 55 and over changed. In 2016, 25% of the overall population of people aged 55 and over was in the 55-to-59 age group, up from 23% in 1996 (Chart 6). Meanwhile, the proportion of seniors aged 70 and over declined from 38% in 1996 to 36% in 2016. Simply put, the population of individuals aged 55 and over became "younger" over the period, largely as a result of the large influx of baby boomers in this age group in the mid-1990s.

Lastly, family factors can also play a role. As mentioned earlier, a spouse's labour market participation can have an impact on the decision to stay in or leave the labour market, particularly for the older population. Similarly, the presence of children in the household may also encourage older workers to stay in the labour market longer.

If the age structure of the population aged 55 and over in 2016 had remained the same as in 1996, the participation rate would have increased, but by a slightly reduced margin (Table 2). Specifically, participation would have increased by 12 percentage points instead of 14. This suggests that age

Table 2
Decomposition of changes in participation rates from 1996 to 2016, men and women aged 55 and over

	Both sexes	Men	Women
	percent		
Actual			
1996	23.8	32.2	16.6
2007	33.3	40.1	27.3
2016	37.7	43.5	32.4
2016 Counterfactual			
With 1996 age structure only	35.9	42.6	30.1
With 1996 education only	30.6	37.7	24.3
With 1996 family structure only	33.7	39.2	28.5
With 1996 age, family and education structure	31.6	39.1	25.4

Source: Statistics Canada, Labour Force Survey, 1996, 2007 and 2016.

might have played a role, but is not the only factor behind the rising labour market participation of older people.

Similarly, if educational factors had been held constant (at 1996 levels), the participation rate would have increased by a smaller margin (by 7 percentage points), and if family factors had been held constant over the period, the participation rate would have increased by 10 percentage points. Education, family status and aging may all have contributed to the increase in participation rates.

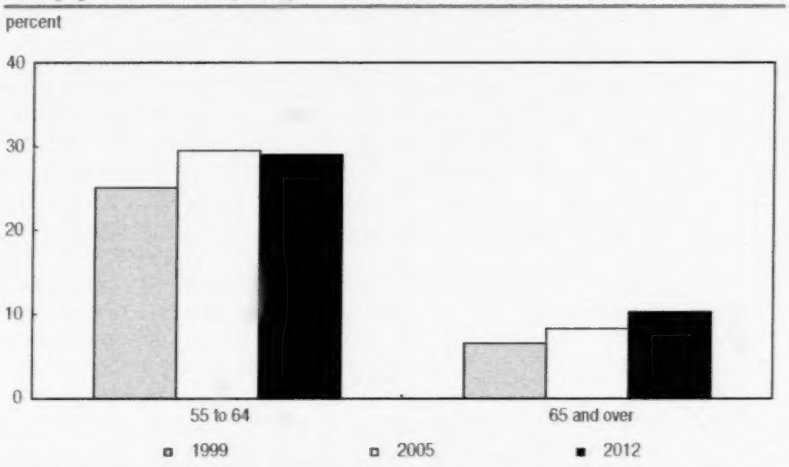
These factors, however, change simultaneously and can be correlated. Older workers in younger age groups, for example, are likely to be more educated than those in older age groups. Younger baby boomers are also more likely to have children at home and have a working spouse than their counterparts in older age groups. It is therefore important to account for all factors together to quantify the joint impact of these compositional effects on the participation rate.

When all factors are considered together in the model, it is seen that the participation rate would have increased by 8 percentage points for individuals aged 55 and over (from 24% to 32%). This suggests that the factors listed above explained 6 of the 14 percentage point increase in the participation rate of older Canadians (44%) over the period, but also suggests that a good portion of the increase must be attributed to other, non compositional factors.

Similar results were found for men and women. Among men, if all of these factors had been held constant, the participation would have increased by 7 percentage points instead of 11. Compositional effects thus explained 39% of the overall increase in the participation rate of men aged 55 and over from 1996 to 2016.

Among women, holding age, family status and education constant would have resulted in a 9 percentage point increase in the participation rate, instead of the 16 percentage point increase older women eventually achieved—meaning that compositional effects accounted for 44% of the overall change in participation rates, while non-compositional effects accounted for 56%.

Chart 7
Percentage of family units headed by individuals aged 55 and over with mortgage debt on their principal residence, 1999, 2005 and 2012



Source: Statistics Canada, Survey of Financial Security, 1999, 2005 and 2012.

Other factors contributing to the increase in the participation rates of older Canadians

Several factors other than age or family or educational factors may account for the increase in the labour market participation of older Canadians. These non-compositional effects include wealth, hourly wages, employment opportunities in the labour market and health.[14]

If older people have lower levels of wealth (due to lower rates of return on assets or rising debt), they may be more likely to stay on the labour market. Recent research has indicated that debt levels have increased among older Canadians,[15] and that older seniors with a mortgage were far more likely to work than those without a mortgage.[16] According to the Survey of Financial Security (SFS), 29% of families headed by 55- to 64-years-olds had a mortgage debt on their principal residence in 2012, up from 25% in 1999 (Chart 7). Among families headed by a senior aged 65 or over, the proportion with a mortgage debt on their principal residence also increased—from 7% to 10%. The median mortgage debt among those with a mortgage also increased over the period—from $96,000 to $155,900 (in real terms) for those aged 55 to 64, and from $77,100 to $125,100 for those aged 65 and over.[17]

Higher wages may also have been an incentive for older individuals to remain on the labour market (all else being equal). The years from 1997 to 2016 were characterized by rising wage levels for older Canadians.[18] According to Labour Force Survey data, the hourly wages of Canadian workers aged 55 and over increased by 12% (in real terms) from 1996 to 2016, while weekly wages increased by 11%. However, during the 2000s, the wages of older Canadians increased less rapidly than those of younger Canadians—the opposite of what happened in the 1980s and 1990s.[19]

On the demand side of the labour market, employment opportunities may also have stimulated older workers to stay on the labour market. From 1996 to 2007, the Canadian economy was characterized by years of sustained economic growth, in part because of the boom in commodity prices. Some regional markets, particularly Alberta and Saskatchewan, were characterized by labour shortages in certain occupations. And although economic growth, on balance, has slowed since the 2008/2009 recession, employment growth remained vigorous among older workers, particularly women.[20]

Lastly, if new cohorts of older workers are healthier than the previous ones, they may be able to work longer. This may increase the participation rates of workers, all else being equal. For the periods from 1995 to 1997 and from 2010 to 2012, the life expectancy at age 55 rose from 23.9 years to 27.1 years among men, and from 28.4 years to 30.5 years among women.[21]

Conclusion

The Canadian workforce is aging quickly. By 2026, 4 in 10 working-age Canadians could be aged 55 or over. Because older Canadians are less likely to work than individuals in their prime working-age, the aging of the population will lead to further declines in the overall participation rate. This will create a challenge for the labour market, government finances and the health care system.

As baby boomers enter their retirement years, the impact of aging is already being felt on the labour market. From 2007 to 2016, the overall participation rate declined by 2 percentage points. If the age structure of the Canadian population had stayed the same as a decade earlier, the participation rate would have increased by 1 percentage point. In addition, the participation would have fallen even further if the Canadian workforce had not become better educated over the period.

The participation rates of older Canadians have increased by a significant margin over the past two decades. Both compositional and non-compositional effects were behind the increase. Compositional effects include an increase in the share of older Canadians who were aged 55 to 64 (who tend to work more), as well as an increase in the educational attainment of older Canadians. However, more than half of the overall increase in the labour market participation of seniors are due to other, non-compositional factors. These factors could include an increase in the debt levels of older Canadians, increased wages and more favourable employment opportunities, or better health.

However, as baby boomers age, it is unclear whether the labour market participation of older Canadians will continue to increase into the future. Other factors can perhaps contribute to keeping seniors on the labour market, including a longer life expectancy, mortgage debt, rising wages and opportunities in the local labour market. Further research will provide a better understanding of the future labour market.

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Data sources, methods and definitions

Data sources

This article uses data from the Labour Force Survey (LFS). The LFS is a monthly survey that collects labour market information for all household members aged 15 and over, as well as demographic and family relationship information for all household members. Excluded from the survey's coverage are persons living on reserves and other Aboriginal settlements in the provinces; full-time members of the Canadian Armed Forces; and the institutionalized population. These groups together represent an exclusion of less than 2% of the Canadian population aged 15 and over.

Method

The Oaxaca–Blinder decomposition technique has been used to analyze the joint impact of several compositional effects on the participation rate. In the context of this paper, this was done by:

- using 2007 LFS microdata, regressing (with ordinary least squares method) a binary indicator of participation (y = 1 if participate, 0 else) on age groups variables, educational attainment variables, marital status variables, and dummy variables to indicate school attendance, the presence of a child under the age of 16 at home, and the presence of a working spouse
- repeating the above with 2016 data
- multiplying the 2016 regression coefficients by the means of the explanatory variables for 2007—the resulting participation rate would equal the hypothetical participation rate that would be observed if the Canadian population had the same age structure, educational attainment/school attendance and family structure it had in 2007.

A similar method was used to decompose the change in the participation rate of people aged 55 and over, but based on 1996 and 2016 data. The variable on school attendance was dropped from the model because few Canadians attend school after the age of 55. The model for older Canadians also accounts for the presence of older children (aged 25 and under), given that the presence of children may represent additional financial obligations for older individuals.

Notes

1. See Milan (2011).
2. See Martel and Ménard (2012).
3. See Martel et al. (2011).
4. Population estimates in this article are based on the Labour Force Survey (LFS). Estimates from the LFS and the Census of Population can differ slightly.
5. See Martel et al. (2011).
6. In 1976, the proportion of youth participating in the labour market had peaked mostly as a result of the high number of baby-boomers born between 1946 and 1965 who were entering the labour market.
7. See Carrière and Galarneau (2011).
8. The decline in the participation rate of youth was more pronounced among those aged 15 to 19. Within this population, most of the decline was due to a decline in the labour market population of students. See Bernard (2015) for a thorough review of labour market participation of youth since the 2008/2009 recession.
9. Previous studies have used a shift-share, age-standardization technique to show that much of the decline in participation in recent years is due to compositional shifts related to population aging (see Wyman 2011 and Janzen 2014). For example, these studies demonstrate that the structure of the population can affect long-term participation rate trends more than actual changes in participation rates among age groups. Specifically, recent shift-share analyses have shown that since the supply of new youth and core age labour is inadequate to replace the large cohort of baby boomers exiting the labour market, the participation rate is declining.
10. According to Schirle (2008), husbands' responses to increases in their wives' participation would account for about one-half of the increase in the labour force participation of men aged 55 to 64 in Canada from the mid-1990s to the mid-2000s.
11. See Uppal (2010).
12. See Park (2010).

13. However, the labour market participation of Canadians aged 65 and above also rose over the period. According to the LFS, the labour market participation rate of Canadians aged 65 and older rose from 6% in 1996 to 14% in 2016.

14. Another factor that might influence the labour market participation of Canadians aged 55 and older is participation in a registered pension plan (RPP). However, according to the Longitudinal Administrative Databank (LAD), the proportion of employed women aged 55 to 64 who were contributing to a RPP (among those who earned more than $10,000 and did not have pension income) remained stable between 1996 and 2014 (at 50%) and declined slightly among men of the same age, from 52% to 44%. These results could possibly explain some of the increase in the labour market participation of men, but do not explain the increase among women.

15. See Marshall (2011); Uppal and LaRochelle-Côté (2015).

16. See Uppal (2010).

17. From 1999 to 2012, the average debt level among people aged 55 to 64 with debt increased from $60,600 to $107,900. It also increased among seniors aged 65 and over, from $31,800 to $61,700.

18. Prior to 1997, the Labour Force Survey did not collect any information about wages.

19. See Morissette et al. (2013).

20. See Drolet et al. (2016).

21. See Statistics Canada's Life Tables, available in electronic format under the Statistics Canada catalogue no. 84-537-X.

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